

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in this application:

LISTING OF CLAIMS:

1. (Previously Presented) A scanning unit for scanning a measuring standard including a coded track formed by a graduated scale and a reference mark system, comprising:

 a detector system configured to scan the coded track;

 an additional detector system configured to scan the reference mark system, the additional detector system including a signal-sensitive surface configured to receive scanning signals when scanning the reference mark system, the additional detector system including at least two sensors, each of the at least two sensors of the additional detector system positioned to scan the reference mark system, the additional detector system configured to use only one of the at least two sensors to scan the reference mark system during operation of the scanning unit;

 a differential amplifier including two inputs, each of the sensors connected to a respective one of the two inputs; and

 an arrangement configured to cover the signal-sensitive surface of a sensor of the at least two sensors of the additional detector system not used for scanning to deactivate the sensor not used for scanning.

2. (Original) The scanning unit as recited in claim 1, wherein the scanning unit is configured to scan the measuring standard in accordance with a photoelectric measuring principle, and wherein the two sensors include photoelements.

3. (Original) The scanning unit as recited in claim 2, wherein the photoelements include photodiodes.

4. (Original) The scanning unit as recited in claim 1, wherein a first input of the differential amplifier is connected to the sensor used for scanning the measuring standard and a second input of the differential amplifier is connected to the deactivated sensor.

5. (Original) The scanning unit as recited in claim 1, wherein each sensor is configured to be optionally activated with the other sensor deactivated, each sensor configured to be optionally connected to each input of the differential amplifier.

6. (Original) The scanning unit as recited in claim 5, wherein the sensors are connected to the inputs of the differential amplifier so that the sensor used for scanning the measuring standard is connected to a first input of the differential amplifier and the other, deactivated sensor is connected to a second input of the differential amplifier.

7. (Original) The scanning unit as recited in claim 6, wherein the sensor used for scanning the measuring standard is connected to an inverting input of the differential amplifier.

8. (Original) The scanning unit as recited in claim 1, wherein the sensors are positioned directly adjacent to one another.

9. (Original) The scanning unit as recited in claim 1, wherein the signal-sensitive surfaces of the sensors are made of the same material.

10. (Original) The scanning unit as recited in claim 1, wherein the signal-sensitive surfaces of the sensors are substantially the same size.

11. (Original) The scanning unit as recited in claim 1, wherein electrical connecting lines between the sensors and a corresponding input of the differential amplifier are conforming.

12. (Original) The scanning unit as recited in claim 1, wherein electrical connecting lines between the sensors and a corresponding input of the differential amplifier have substantially a same length.

13. (Original) The scanning unit as recited in claim 1, wherein the sensors are configured to scan reference marks of the reference mark system having exactly one type.

14. (Original) The scanning unit as recited in claim 1, wherein the sensors are configured to scan different reference marks of the reference mark system.

15. (Original) The scanning unit as recited in claim 14, wherein the reference mark system includes coded and uncoded reference marks.

16. (Original) The scanning unit as recited in claim 14, wherein the reference marks system includes distance-coded reference marks and uncoded reference marks.

17. (Original) The scanning unit as recited in claim 1, wherein the coded track is arranged as an incremental track.

18. (Previously Presented) A measuring device for taking positional measurements of two assemblies which are movable in relation to one another, comprising:

a measuring standard including a coded track formed by a graduated scale and a reference mark system; and

a scanning unit, including:

a detector system configured to scan the coded track;

an additional detector system configured to scan the reference mark system, the additional detector system including a signal-sensitive surface configured to receive scanning signals when scanning the reference mark system, the additional detector system including at least two sensors, each of the at least two sensors of the additional detector system positioned to scan the reference mark system, the additional detector system configured to use only one of the at least two sensors to scan the reference mark system during operation of the scanning unit;

a differential amplifier including two inputs, each of the sensors connected to a respective one of the two inputs; and

an arrangement configured to cover the signal-sensitive surface of a sensor of the at least two sensors of the additional detector system not used for scanning to deactivate the sensor not used for scanning.

19. (Currently Amended) The A scanning unit as recited in claim 1, for scanning a measuring standard including a coded track formed by a graduated scale and a reference mark system, comprising:

a detector system configured to scan the coded track;

an additional detector system configured to scan the reference mark system, the additional detector system including a signal-sensitive surface configured to receive scanning signals when scanning the reference mark system, the additional detector system including at least two sensors, each of the at least two sensors of the additional detector system positioned to scan the reference mark system, the additional detector system configured to use only one of the at least two sensors to scan the reference mark system during operation of the scanning unit;

a differential amplifier including two inputs, each of the sensors connected to a respective one of the two inputs; and

an arrangement configured to cover the signal-sensitive surface of a sensor of the at least two sensors of the additional detector system not used for scanning to deactivate the sensor not used for scanning;

wherein the arrangement configured to cover the signal-sensitive surface of the sensor of the at least two sensors of the additional detector system not used for scanning to deactivate the sensor not used for scanning permanently covers the signal-sensitive surface of the sensor of the at least two sensors of the additional detector system not used for scanning.

20. (New) The scanning unit as recited in claim 1, wherein the differential amplifier is configured to suppress electrical interference occurring at the sensors or connecting lines that connect the sensors to the respective inputs of the differential amplifier by subtraction of signals received by the differential amplifier from the sensors.

21. (Currently Amended) The A measuring device as recited in claim 18, for taking positional measurements of two assemblies which are movable in relation to one another, comprising:

a measuring standard including a coded track formed by a graduated scale and a reference mark system; and

a scanning unit, including:

a detector system configured to scan the coded track;
an additional detector system configured to scan the reference mark
system, the additional detector system including a signal-sensitive surface
configured to receive scanning signals when scanning the reference mark
system, the additional detector system including at least two sensors, each of
the at least two sensors of the additional detector system positioned to scan
the reference mark system, the additional detector system configured to use
only one of the at least two sensors to scan the reference mark system during
operation of the scanning unit;

a differential amplifier including two inputs, each of the sensors
connected to a respective one of the two inputs; and

an arrangement configured to cover the signal-sensitive surface of a
sensor of the at least two sensors of the additional detector system not used
for scanning to deactivate the sensor not used for scanning;

wherein the arrangement configured to cover the signal-sensitive surface of the sensor of the at least two sensors of the additional detector system not used for scanning to deactivate the sensor not used for scanning permanently covers the signal-sensitive surface of the sensor of the at least two sensors of the additional detector system not used for scanning.

22. (New) The measuring device as recited in claim 18, wherein the differential amplifier is configured to suppress electrical interference occurring at the sensors or connecting lines that connect the sensors to the respective inputs of the differential amplifier by subtraction of signals received by the differential amplifier from the sensors.